IN THE CLAIMS

1. (original) A light beam display, comprising:

a display screen having a vertical and a horizontal dimension;

a source of one or more light beams;

an optical path between the display screen and the light beam source for directing said one or more light beams to the display screen, including a movable reflector having a plurality of reflective facets for providing horizontal scanning of the light beams and a horizontal scan line distortion correction lens;

an optical mechanical element for vertically shifting the light beams so as to illuminate different scan lines of the display screen; and

control electronics for controlling the scan timing to compensate for varying scan line length introduced by said horizontal scan line distortion correction lens.

2. (original) A light beam display as set in claim 1, wherein the movable reflector is a rotatable polygon.

3. (original) A light beam display as set in claim 1, wherein the horizontal scan line distortion correction lens has optical distortion substantially greater than an f-theta lens.

4. (original) A light beam display as set out in claim 1, wherein said horizontal scan line distortion correction lens has maximum optical distortion in a range between

about 10% greater distortion and 500% greater distortion than an f-theta lens through a horizontal field angle of 8 – 28 degrees.

5. (original) A light beam display as set out in claim 4, wherein said horizontal scan line correction lens comprises an aspheric lens.

6. (original) A light beam display as set out in claim 3, wherein said optical path further comprises a collimating lens.

7. (original) A light beam display as set out in claim 6, wherein said light beam source comprises an array of LED's and wherein said collimating lens introduces distortion into the plural light beams substantially opposite to said horizontal scan line distortion correction lens.

8. (original) A light beam display as set out in claim 7, wherein said horizontal distortion correction lens is configured in the optical path between the display screen and movable reflector and the collimating lens is configured in the optical path on the opposite side of the movable reflector.

9. (original) A light beam display as set out in claim 8, wherein said horizontal distortion correction lens is an assembly of lens elements collectively providing the desired distortion.

10. (original) A light beam display as set out in claim1 further comprising an input for receiving video data, the video data including a plurality of horizontal lines of display information and wherein said control electronics comprises a memory for storing video data and a timing control circuit for controlling timing of read out of video data from the memory in accordance with the horizontal line number of said video data.

11. (original) A light beam display as set out in claim 10, wherein said timing control circuit comprises:

a pixel clock converter for adjusting the pixel clock for each scan line; and

a start of line converter for adjusting the start timing for each scan line.

12. (original) A light beam display as set out in claim 11, wherein said pixel clock converter increases the pixel clock rate for scan lines closer to the edge of the display.

13. (original) A light beam display as set out in claim 11, wherein the start of line converter provides a variable delay as the scan lines are closer to the edge of the display.

14. (original) A method of displaying information on a display screen employing one or more light beams, comprising:

directing a light beam to the display screen via an optical path including a movable reflector having plural reflective facets;

scanning the light beam in a horizontal direction using the movable reflector to trace out a horizontal scan line;

distorting the light beam while traversing said optical path to correct nonlinearity in the horizontal scan line introduced by the movable reflector;

shifting the light beam in the vertical direction; and

adjusting the timing of the scanning based on the vertical position of the horizontal line in the screen to correct scan length distortion.

15. (original) A method of displaying information on a display screen employing one or more light beams as set out in claim 14, wherein said adjusting of the timing is performed on a line by line basis.

16. (original) A method of displaying information on a display screen employing one or more light beams as set out in claim 14, wherein said adjusting of the timing comprises controlling the rate of read out of horizontal lines of video information from a video memory based on the horizontal line being scanned.

17. (original) A method of displaying information on a display screen employing one or more light beams as set out in claim 16, wherein the read out rate is altered nonlinearly with horizontal line number.

18. (original) A method of displaying information on a display screen employing one or more light beams as set out in claim 16, wherein said adjusting of the timing

further comprises controlling the start of line timing based on the horizontal line being scanned.

19. (original) A method of displaying information on a display screen employing one or more light beams as set out in claim 14, wherein said distorting the light beam comprises providing a distortion greater than an f-theta lens.

20. (original) A method of displaying information on a display screen employing one or more light beams as set out in claim 19, wherein the distortion is between about 10% and 500% greater than the distortion of an f-theta lens through a horizontal scan field angle of about 8 – 28 degrees.

21. (original) A method of displaying information on a display screen employing one or more light beams as set out in claim 14, wherein said movable reflector is a rotatable polygon.

22. (original) A light beam scanning system, comprising:

a source of one or more light beams;

a rotatable polygon having a plurality of reflective sides, configured to intercept said one or more light beams and scan said one or more light beams in a first direction to create a first scan line;

means for shifting the one or more beams to create plural additional scan lines displaced in a second direction from said first scan line;

means for distorting the one or more light beams to correct bowing of the scan lines and introducing distortion in the second direction; and

timing means for correcting the distortion in the second direction.

23. (original) A light beam scanning system as set out in claim 22, wherein said means for distorting comprises a lens having distortion greater than an f-theta lens.

24. (original) A light beam scanning system as set out in claim 23, wherein said means for distorting comprises a lens having distortion between about 10% and 75% greater than an f-theta lens through at least a portion of the field angle.

25. (original) A light beam scanning system as set out in claim 22, wherein said timing means provides a variable timing delay based on the amount of shifting of the scan lines in the second direction.

26. (original) A light beam scanning system as set out in claim 22, wherein said timing means provides a variable pixel clock rate based on the amount of shifting of the scan lines in the second direction.

27. (currently amended) A method for correcting scan line bowing in a rotatable polygon reflector light beam scanning system, comprising:

distorting the light beam by an amount ~~substantially~~ greater than the distortion provided by an f-theta lens to remove the scan line bow introduced by the rotatable polygon reflector; and

correcting scan line length variation introduced by said distorting by adjusting the scan line timing.

28. (original) A method for correcting scan line bowing as set out in claim 27, wherein said distorting provides a maximum distortion between about 10% and 500% greater than the maximum distortion of an f-theta lens through a field angle of 8 – 28 degrees.

29. (original) A method for correcting scan line bowing as set out in claim 27, wherein said correcting scan line length variation comprises adjusting the start of line timing.

30. (original) A method for correcting scan line bowing as set out in claim 29, wherein said correcting scan line length variation further comprises adjusting the scan line length by adjusting a pixel clock rate for the scan line.